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(54) Title: **ACTIVATING MUTATIONS OF PLATELET DERIVED GROWTH FACTOR RECEPTOR ALPHA (PDGFRA) AS  
DIAGNOSTIC MARKERS AND THERAPEUTIC TARGETS;**

(57) Abstract: This disclosure provides tyrosine kinase protein and nucleic acid variants, particularly PDGFRA variants, which are activating forms of these molecules and are linked to neoplasms and/or the development or progression of cancer. The disclosure further provides methods of diagnosis and prognosis, and development of new therapeutic agents using these molecules and fragments thereof, and kits for employing these methods and compositions.